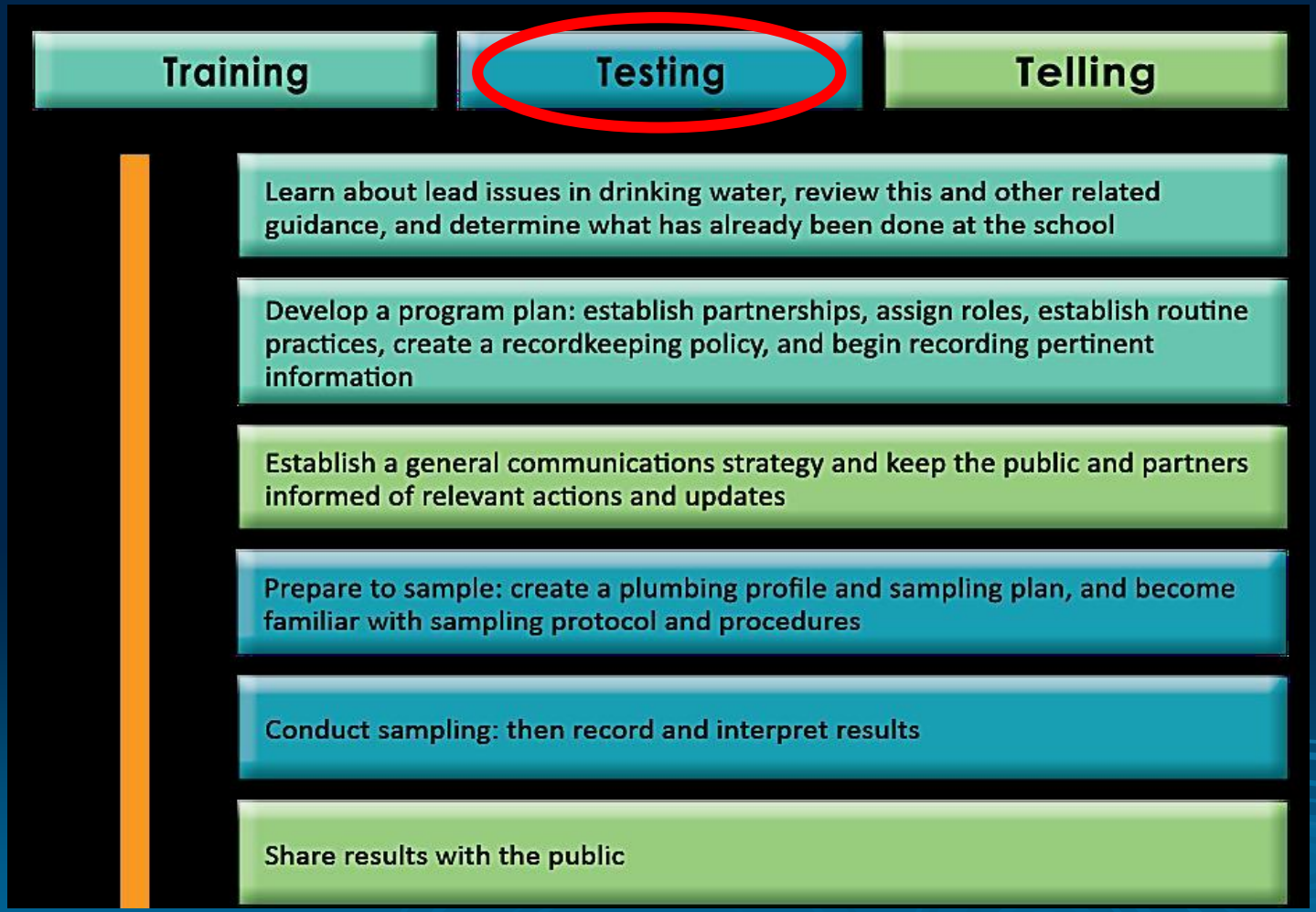
LEAD TESTING IN SCHOOLS TRAINING WORKSHOP - "TESTING"

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
WATER SUPPLY DIVISION

STEPS TO DEVELOP AND IMPLEMENT A 3Ts PROGRAM



TESTING

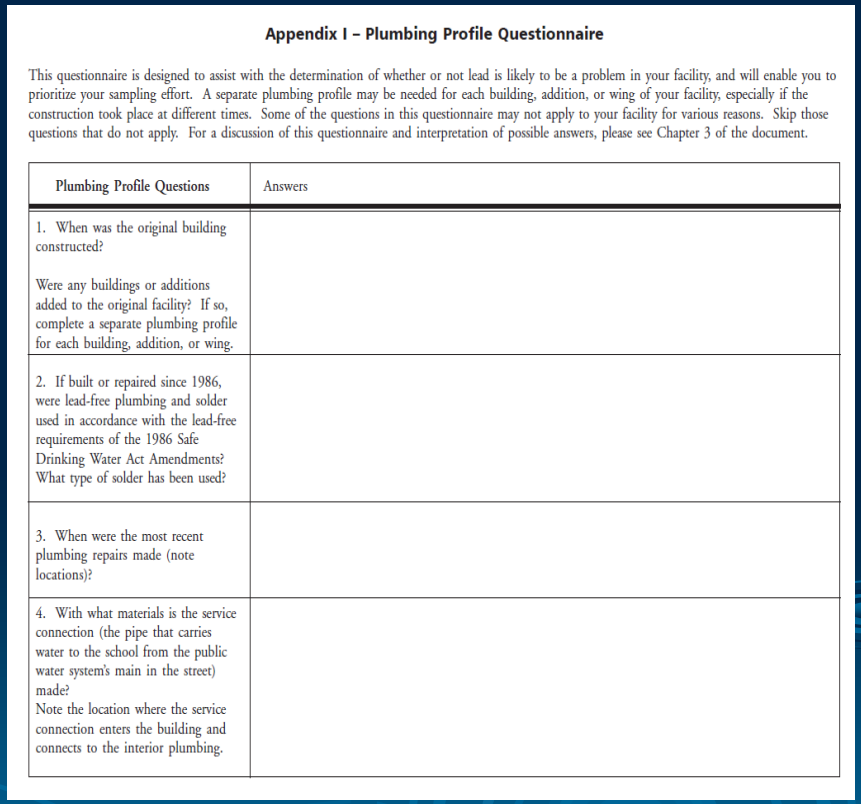
- Assessment & Strategy
- Conducting Sampling
- Remediation

ASSESSMENT & STRATEGY

- Review available records.
- Develop a Plumbing Profile.
- Conduct a Pre-Sampling Inspection of your building(s).
  - Understand how water enters and flows.
  - Identify the building plumbing products.
- Identify and prioritize sampling sites.
  - Map and code each outlet.
- Record observations.
  - Such as leaks, corrosion, particles on screens, locations where electric wires are grounded to pipes, etc.

PLUMBING PROFILE

- Questionnaire
  - Identify building water lines by reviewing available plumbing records.
  - Determine location of water Service Line(s).
  - Determine the layout and route cold water takes after it leaves the entry point and the direction cold water travels through the building.



Appendix I – Plumbing Profile Questionnaire

This questionnaire is designed to assist with the determination of whether or not lead is likely to be a problem in your facility, and will enable you to prioritize your sampling effort. A separate plumbing profile may be needed for each building, addition, or wing of your facility, especially if the construction took place at different times. Some of the questions in this questionnaire may not apply to your facility for various reasons. Skip those questions that do not apply. For a discussion of this questionnaire and interpretation of possible answers, please see Chapter 3 of the document.

Plumbing Profile Questions	Answers
1. When was the original building constructed? Were any buildings or additions added to the original facility? If so, complete a separate plumbing profile for each building, addition, or wing.	
2. If built or repaired since 1986, were lead-free plumbing and solder used in accordance with the lead-free requirements of the 1986 Safe Drinking Water Act Amendments? What type of solder has been used?	
3. When were the most recent plumbing repairs made (note locations)?	
4. With what materials is the service connection (the pipe that carries water to the school from the public water system's main in the street) made? Note the location where the service connection enters the building and connects to the interior plumbing.	

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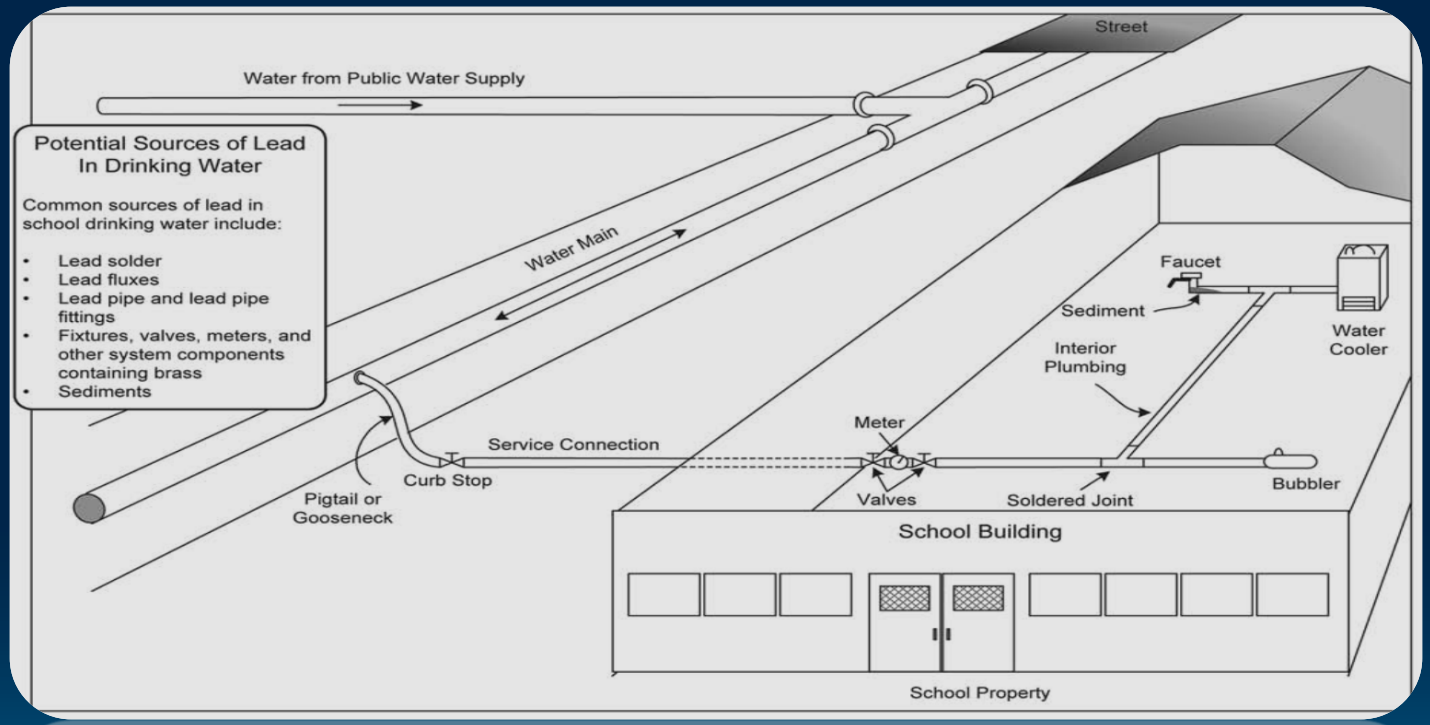
PLUMBING PROFILE (cont.)



PRE SAMPLING INSPECTION

- Inventory all Drinking Water Sinks and Fountains
  - Inspect the visible plumbing of these fixtures by looking inside cabinets and under sinks.
  - Document if faucets have screens/aerators.
    - Do not remove them.
  - Check all water coolers to ensure they do not have a lead lined tank.
    - Lead Contamination Control Act (LCCA).
    - *3 Ts for Reducing Lead in Drinking Water in Schools*, Appendix E is guidance as to which model fountains contain lead and should be removed.

PRIORITIZE SAMPLING OUTLETS

Water Cooler


Drinking Water Bubbler


Classroom Sink


Kitchen Sinks


Teacher's Lounge Sinks


Nurse's Office Sink

Additional Priority Sites:

- Special Education Classrooms.
- Any other sink that is known to be used for consumption. (e.g. Coffee Maker)

ADDITIONAL LOCATIONS

- The following sink types should be noted, but are not generally used for drinking water.

Janitor Sink

Art/Science Room sinks

Bathroom Sinks

IDENTIFY & LABEL SAMPLE LOCATIONS

- Select drinking water fixtures for sampling.
  - Every outlet regularly used for drinking or cooking should be sampled.
  - Priority is given to drinking fountains that are accessed by children.
  - Assign a unique sample site identification (ID) number that states the type of fixture and location.
    - Example: Water Cooler in classroom 110 could be “Room 110 WC”
  - Label each site on a map of the facility.

OVERVIEW OF SAMPLING PROTOCOL

- The EPA 3Ts recommends a 2-step sampling process to identify whether lead is an issue at the school and to pinpoint potential lead sources (i.e., the fixture or interior plumbing).
- Provide information on how to take samples, how to interpret the results, and how to choose appropriate remediation measures.
- The EPA 3Ts guidance also discusses other parameters (i.e., copper and bacteria), and how to take additional interior plumbing samples.

PWS TESTING VS. TESTING AT SCHOOLS

Lead and Copper Rule (LCR)	3Ts for Reducing Lead in Drinking Water in Schools
Required: All community and non-transient non community water systems	**Voluntary Program**: To assist schools with training, testing, and telling
Sample Volume: 1 L	**Sample Volume**: 250 mL
Action Level: 15 parts per billion (ppb)	**Action Level**: 20 parts per billion (ppb)
Follow-up Actions: If more than 10% of the samples exceed the action level, water systems are required to undertake actions including optimizing corrosion control treatment.	**Follow-up Actions**: If the initial sample at any one outlet is above the action level, follow-up flush testing is recommended at that outlet to determine the source of the lead, and then determine remediation.

SAMPLING PROTOCOL

- First Draw Sampling: ensure outlets are inactive for at least 8 hours prior to testing, but not more than 18 hours.
- Sample cold water.
- Sample when the school is in regular session.
- Pick a weekday to sample, not the morning after a weekend or holiday.
- Do not remove the aerator from the fixture at any time during the sampling process.
- Start with fixtures closest to the water Service Lines and move progressively, testing the farthest away fixture last.
- Make note of any fixtures that are leaking.
- You will need one 250 milliliter (mL) sample bottle for each fixture tested.
- Properly label the samples to identify each fixture tested.

SAMPLING PROTOCOL (cont.)

- The 2 Step Sampling Process:
  - **Step 1** – Collect 250 mL first draw (initial) samples from water outlets to determine lead occurrence.
    - Focuses on the fixture itself.
  - **Step 2** – Collect follow up flush samples from outlets identified as problem locations from Step 1 as part of remediation.
    - Focuses on the internal plumbing.

SAMPLING PROTOCOL (cont.)

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- Fill the bottle to the line marked “250 mL” and then turn the water off. Cap the bottle tightly.

- Fill out laboratory chain of custody form and bottle label with:
  - School name or building name
  - Sample type (first-draw)
  - Collection date and time
  - Name of the person collecting the sample
  - Sample location – outlet or fixture
  - Contact and billing information

- Send samples to an accredited laboratory.
  - Make sure the lab is aware this is for school testing.

REMEDIATION

- Routine Control Measures
- Interim Control Measures
- Permanent Remedies

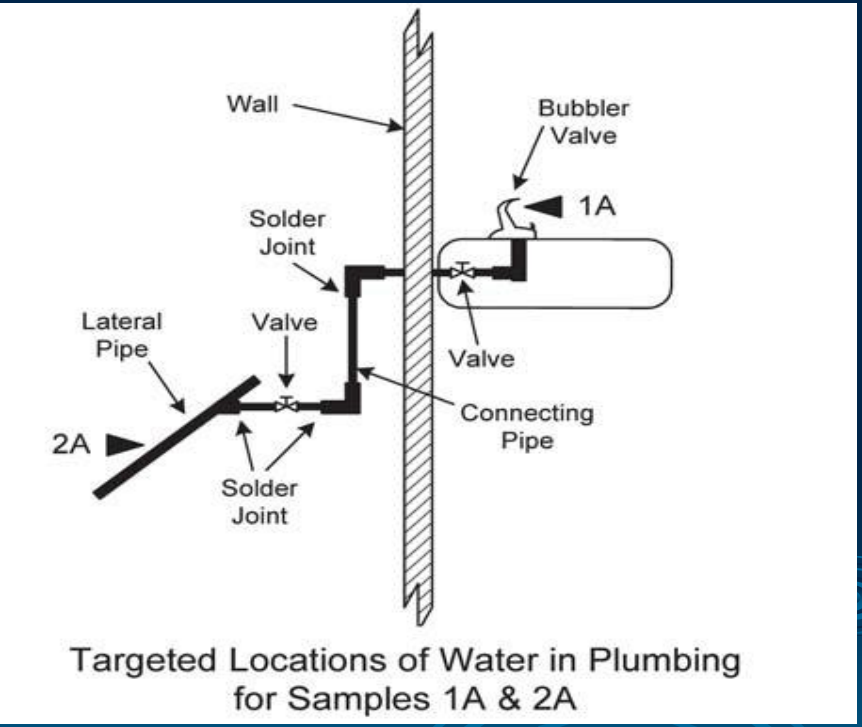
CONDUCT FLUSH SAMPLING

- If any initial sample tests higher than 20 ppb in a 250 mL sample at a given fixture, conduct flush sampling.

- Determine if the contamination is coming from the fixture or the plumbing
  - Follow same steps from Sampling as before, except instead of first draw, let water run for 30 seconds before collecting the sample.
  - Mark the sample as a Flush sample

FLUSH SAMPLING RESULTS

- Using the initial and flush sample results you will be able to determine if the lead contamination is localized or widespread.
- This information will help you to determine what types of remediation may be appropriate for your system.



Targeted Locations of Water in Plumbing for Samples 1A & 2A

ROUTINE CONTROL MEASURES

- Should be conducted regularly to prevent exposure to elevated levels of lead.
  - Clean debris from screens (aerators) frequently.
  - Thoroughly flush holding tanks to remove sediment.
  - Use only cold water for food and beverage preparation.
  - Maintain drinking water filters.
  - Post notices in bathrooms that water should not be consumed.
  - Know your plumbing products.
  - Keep up to date with plumbing standards.
    - Consult NSF (www.nsf.org)

REMEDIATION: SHORT-TERM ACTIONS

- Flush the piping system in your building
  - Open suspect taps every morning before facility opens and let water run to remove stagnant water.
- Provide bottled water
  - The Food and Drug Administration (FDA) ensures the quality and safety of bottled water.
- Shut off problem outlets
  - Place “Out of Order” signs on fixtures.

REMEDIATION: PERMANENT REMEDIES

- Remove or replace water outlets.
- Install point-of-use filters that control lead at the tap.
  - Visit the NSF website for more information.
- Check grounding wires.
- Lead pipe replacement.
- Reconfigure plumbing.
- Manual and automatic flushing.
- Bottled water.
- Permanently shut off problem outlets.
- Use lead free materials.

RECORDKEEPING

- Recordkeeping is very important before, during, and following any testing that is conducted. Some suggestions for you include:
  - Documenting methodologies, procedures, and best practices that were used to plan for testing.
  - Maintaining information about the laboratories and/or professionals and their procedures used.
  - Documents any plans instituted in the process. (i.e., flushing plans, maintenance plans, sampling schedules, etc.)

QUESTIONS